

<b>Interview Summary</b>	Application No.	Applicant(s)
	10/825,001	EOFF ET AL.
	Examiner George Suchfield	Art Unit 3676

All participants (applicant, applicant's representative, PTO personnel):

(1) George Suchfield. (3) Randall C. Brown.  
 (2) Pricilla Ferguson. (4) \_\_\_\_\_.

Date of Interview: 12 April 2006.

Type: a) Telephonic b) Video Conference  
 c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.  
 If Yes, brief description: proposed amdt.

Claim(s) discussed: 1-24.

Identification of prior art discussed: Eoff et al'116, Argillier et al'556, Landoll'277.

Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
 Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Proposed amendment discussed, but no agreement reached regarding patentability. In their upcoming response, applicant may further combine amended claim 1 with claim 13, in order to overcome the 35 USC 102 rejection. It was pointed out that original claims 3-12 were deemed allowable over the applied references, such as Argillier et al'556, except for the obviousness double patenting rejection. Applicant will file a terminal disclaimer and may include additional independent claim(s) including features/limitations from one or more claims 3-12 .

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: § Confirmation No. 7284  
Larry S. Eoff, et al. §  
§  
Application No.: 10/825,001 § Group Art Unit: 3676  
§  
Filed: April 15, 2004 §  
§  
For: HYDROPHOBICALLY MODIFIED § Examiner: Suchfield, George A.  
POLYMERS FOR A WELL §  
COMPLETION SPACER FLUID §

PROPOSED CLAIMS

1. A method of reducing the water permeability of a well bore in a formation, comprising:  
introducing into the wellbore a wellbore treating fluid to separate for separating a first fluid from a second fluid and to displace for displacing the first fluid from the wellbore in advance of the second fluid, wherein the wellbore treating fluid comprises comprising a water soluble relative permeability modifier, and wherein the water soluble relative permeability modifier comprises a hydrophobically modified water soluble polymer; and  
allowing the treating fluid to enter the formation, thereby allowing the water soluble relative permeability modifier to be adsorbed into the formation, which adsorption causes a reduction in the water permeability of the wellbore without substantially reducing the hydrocarbon permeability thereof thereby reducing the water permeability of the well bore.
2. The method of claim 1, wherein the hydrophobically modified water soluble polymer is a reaction product of a hydrophilic reactive polymer and a hydrophobic compound.
3. The method of claim 2, wherein the hydrophilic reactive polymer comprises a reactive amino group.
4. The method of claim 3, wherein the reactive amino group is located in the polymer backbone or is a pendant group.

5. The method of claim 2, wherein the hydrophilic reactive polymer comprises a dialkyl amino pendant group.
6. The method of claim 2, wherein the hydrophilic reactive polymer comprises a dimethyl amino pendant group.
7. The method of claim 2, wherein the hydrophilic reactive polymer is a product of a polymerization reaction in which at least one monomer is selected from the group consisting of dimethylaminoethyl methacrylate and dimethylaminopropyl methacrylamide.
8. The method of claim 2, wherein the hydrophilic reactive polymer is a homo-, co- or terpolymer.
9. The method of claim 2, wherein the hydrophilic reactive polymer is selected from the group consisting of polyethyleneimine, polyvinylamine, poly(vinylamine/vinyl alcohol), chitosan and polylysine.
10. The method of claim 2, wherein the hydrophilic reactive polymer comprises an alkyl acrylate polymer.
11. The method of claim 10, wherein the alkyl acrylate polymer is selected from the group consisting of polydimethylaminoethyl methacrylate, polydimethylaminopropyl methacrylamide, poly(acrylamide/dimethylaminoethyl-1 methacrylate), poly(acrylamide/dimethylaminopropyl methacrylamide) and poly (acrylic acid/dimethylaminoethyl methacrylate).
12. The method of claim 11, wherein the alkyl acrylate polymer is selected from the group consisting of polydimethylaminoethyl methacrylate and polydimethylaminopropyl methacrylamide.
13. The method of claim 2, wherein the hydrophobic compound comprises an alkyl halide.

14. The method of claim 13, wherein the alkyl halide comprises an alkyl chain of from about 4 to about 30 carbon atoms.

15. The method of claim 13, wherein the hydrophobic compound comprises cetyl bromide.

16. The method of claim 1, wherein the hydrophobically modified water soluble polymer is a reaction product of a hydrophilic monomer and a hydrophobically modified hydrophilic monomer.

17. The method of claim 16, wherein the hydrophilic monomer is selected from the group consisting of acrylamide, 2-acrylamido-2-methyl propane sulfonic acid, N,N-dimethylacrylamide, vinyl pyrrolidone, dimethylaminoethyl methacrylate, acrylic acid, dimethylaminopropylmethacrylamide, vinyl amine, trimethylammoniummethyl methacrylate chloride, methacrylamide and hydroxyethyl acrylate.

18. The method of claim 16, wherein the hydrophilic monomer is selected from the group consisting of acrylamide, 2-acrylamido-2-methyl propane sulfonic acid, acrylic acid, dimethylaminoethyl methacrylate, dimethylaminopropyl methacrylamide and vinyl pyrrolidone.

19. The method of claim 16, wherein the hydrophobically modified hydrophilic monomer is selected from the group consisting of alkyl acrylates, alkyl methacrylates, alkyl acrylamides and alkyl methacrylamides wherein the alkyl radicals have from about 4 to about 22 carbon atoms; alkyl dimethylammoniummethyl methacrylate bromide, alkyl dimethylammoniummethyl methacrylate chloride and alkyl dimethylammoniummethyl methacrylate iodide wherein the alkyl radicals have from about 4 to about 22 carbon atoms; and alkyl dimethylammoniumpropyl methacrylamide bromide, alkyl dimethylammoniumpropyl methacrylamide chloride and alkyl dimethylammoniumpropyl methacrylamide iodide wherein the alkyl groups have from about 4 to about 22 carbon atoms.

20. The method of claim 19, wherein the hydrophobically modified hydrophilic monomer is selected from the group consisting of octadecyldimethylammoniummethyl methacrylate bromide,

hexadecyldimethylammoniummethyl methacrylate bromide, hexadecyldimethylammoniumpropyl methacrylamide bromide, 2-ethylhexyl methacrylate and hexadecyl methacrylamide.

21. The method of claim 16, wherein the hydrophobically modified water soluble polymer has a molecular weight in the range of from about 250,000 to about 3,000,000.

22. The method of claim 16, wherein the hydrophilic monomer and the hydrophobically modified hydrophilic monomer are present in the hydrophobically modified water soluble polymer at a mole ratio of from about 99.98:0.02 to about 90:10.

23. The method of claim 16, wherein the hydrophobically modified water soluble polymer is selected from the group consisting of acrylamide/octadecyldimethylammoniummethyl methacrylate bromide copolymer, dimethylaminoethyl methacrylate/hexadecyldimethylammoniummethyl methacrylate bromide copolymer, dimethylaminoethyl methacrylate/vinyl pyrrolidone/hexadecyldimethylammoniummethyl methacrylate bromide terpolymer and acrylamide/2-acrylamido-2-methyl propane sulfonic acid/2-ethylhexyl methacrylate terpolymer.

24. The method of claim 23, wherein the hydrophobically modified water soluble polymer comprises a dimethylaminoethyl methacrylate/hexadecyldimethylammoniummethyl methacrylate bromide copolymer having a mole ratio of hydrophilic monomer to hydrophobically modified hydrophilic monomer of 95:5.